



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/812,408

03/26/2004

Toshiyuki Kamiya

9319S-000745

1286

27572

7590

06/01/2005

HARNESSE, DICKEY & PIERCE, P.L.C.

P.O. BOX 828

BLOOMFIELD HILLS, MI 48303

EXAMINER

DOAN, THERESA T

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/812,408

Applicant(s)

KAMIYA, TOSHIYUKI

Examiner

Theresa T. Doan

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/26/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because the reference numbers "6" and "7" disclosed in Fig. 1 (a) have been incorrectly labeled the elements. Therefore, in Fig.1(a), the reference number "6" should be changed to "7" which refers to a fuse, and the reference number "7" should be changed to "8" which refers to the first protection film.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohhashi (U.S. Pat. 6,586,815).

Regarding claim 1, Ohhashi (figures 4F-4G) discloses a semiconductor device comprising:

a fuse 12 including an upper layer wiring layer (column 10, lines 1-4);

a first protection film 152 on the fuse 12 (column 10, lines 1-4); and

a second protection film 153 on the first protection film 152 (see figure 4F and column 10, lines 6-7), the second protection film 153 including an opening section 11 formed therein that exposes the first protection film 152 (see figure 4G and column 10, lines 13-15);

the opening section 11 exposing an entire portion of the first protection film 152 located directly above the fuse 12.

FIG.4F

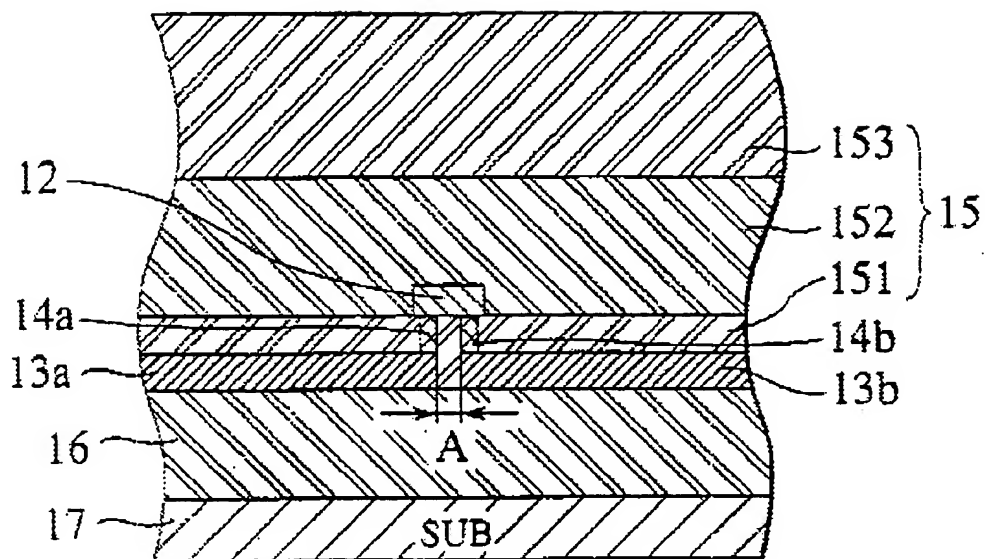
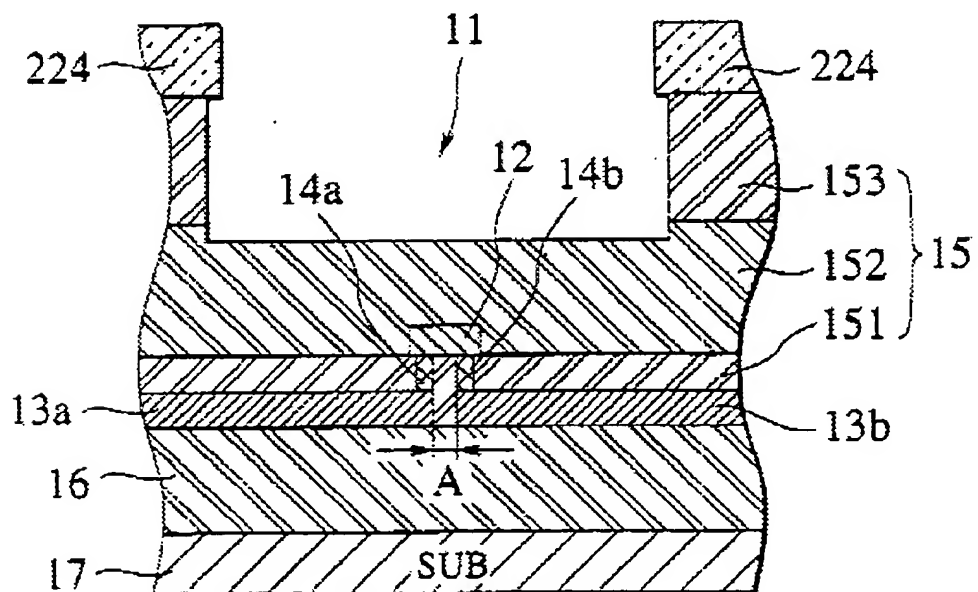
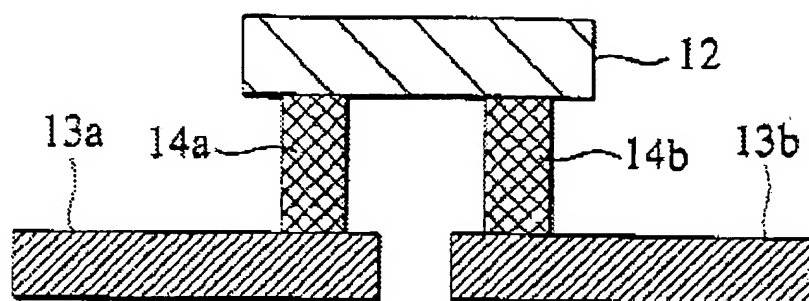


FIG.4G



Regarding claim 2, Ohhashi (figure 4G) further discloses that each of two end sections of the fuse 12 is connected to a lower layer wiring layer (13a and 13b) through a via hole (14a and 14b) (also see figure 5A).

FIG.5A



Regarding claim 3, Ohhashi (figures 4F-4G) discloses a method for manufacturing a semiconductor device, comprising:

- a step of forming a fuse 12 including of an upper layer wiring layer on an upper surface of an interlayer dielectric layer 151 that is formed on a substrate 17 (see figure 4F and column 9, lines 44-46);

- a step of forming a first protection film 152 on an upper surface of the interlayer dielectric layer 151 and the fuse 12 (column 10, lines 1-4); and

- a step of forming a second protection film 153 on an upper surface of the first protection film 152 (see figure 4F and column 10, lines 6-7); and

- a step of forming the opening section 11 in the second protection film 153, the opening section 11 that exposing an entire portion of the first protection film 152 located directly above the fuse 12 (see figure 4G and column 10, lines 13-15).

Regarding claim 4, Ohhashi (figure 4G) further discloses the steps of forming via holes (14a and 14b) in the interlayer dielectric layer 151, and connecting two ends of the fuse to a lower layer wiring layer (13a and 13b) through the via holes (14a and 14b) (also see figure 5A).

Regarding claim 5, Ohhashi (figures 4F-4G) discloses a semiconductor device comprising:

- a substrate 17 (column 6, line 23);
 - a fuse 12 disposed on the substrate 17, the fuse 12 including an upper layer wiring layer (see figure 4F and column 10, lines 1-4);
 - a first protection film 152 disposed on the fuse 12 (column 10, lines 1-4); and
 - a second protection film 153 disposed on the first protection film 152 (see figure 4F and column 10, lines 6-7), the second protection film 153 including an opening 11 formed therein that exposing the first protection film 152 (see figure 4G and column 10, lines 13-15);
- the opening section 11 having a width at least equal to a width of the fuse 12 (see figure 4G).

Regarding claims 6-7, Ohhashi further discloses that the opening section 11 extends outboard of the fuse 12 and the opening section 11 includes bottom end portions outboard of the fuse 12 (see figure 4G).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa T. Doan whose telephone number is (571) 272-1704. The examiner can normally be reached on Monday to Friday from 7:00AM - 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WAEL FAHMY can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Theresa Doan
May 24, 2005.